

SENH MARCH MEETING ANNOUNCEMENT

NEXT MEETING: Wednesday, March 27, 2019

PLACE: University of New Hampshire
DeMeritt Hall Room 112 (large lecture hall on the first floor)
9 Library Way
Durham, NH 03824

DIRECTIONS: From the West: Take Rt. 101 to Rt. 125 North. At the Lee traffic circle, take Rt. 4 East to Exit for 155A (Main St.) Go right to 155A (Main St.), pass UNH Field House, take next right onto College Rd. Veer left onto College Rd. DeMeritt Hall is the second building inwards from the second large building on the left.

From the East: Take Rt. 16 North to Rt. 4 East towards Durham. Exit Rt. 4 onto Main Street and follow directions from above.

PARKING: Park in the visitor section of Lot H (before 9:00 pm it's "pay and display" parking by the hour, and then after 9:00 pm this lot is free). Lot A and Lot B are free after 6:00 pm, or use "pay and display" spots around campus. Please be careful to read all parking lot signs and hours before parking, and see the attached parking map.

AGENDA: 5:30 pm – 6:30 pm Registration/Social Hour/Dinner
6:30 pm – 6:45 pm Business Meeting
6:45 pm – 8:45 pm Presentations (See Next Page)

DINNER: Pizza, Assorted Sodas and Water.

Please include any food allergies or dietary restrictions to be accommodated.

COST: Member: \$20.00 - Non-Member: \$25.00
Student: FREE
"No-shows" will be billed at full amount. Refunds will not be issued.

RSVP: By Wednesday, March 20, 2019. There will be a \$5.00 late fee for anyone wishing to RSVP past this date.

Pay on line using PayPal at <http://www.senh.org/meeting-calendar> or send check payable to "Structural Engineers of New Hampshire" with list of attendees to:

TFMoran, Inc.
Attn. Cassi Beroney
48 Constitution Drive
Bedford, NH 03110
cberoney@tfmoran.com

NOTE: 2.0 PDHs have been assigned for attendance. Attendees are responsible for ensuring their check-in on the attendance list upon arrival at the meeting.

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PRESENTATIONS:

6:45 pm-7:15 pm

The Site Development on the Haverhill Riverfront Senior Capstone Group will be presenting on their project progress.

An additional time slot will be available for a Senior Capstone Group to present.

7:15 pm-7:45 pm

Structural Investigation, Evaluation, and Life Safety Decisions

By Jeffrey Tirey, PE

Mr. **Jeffrey Tirey** is the president of Tirey & Associates, in Littleton, NH, where he specializes in structural evaluations, failure investigations, and expert testimony services for most building types. He earned his BS in Civil Engineering from MIT, and is a licensed Professional Engineer in six states with over 42 years of experience. Jeffrey was the 2010 New Hampshire Engineer of the Year, and has served on numerous boards for SENH, including the founding board of directors. He has also had the opportunity to teach the Timber Design course at UNH at the graduate and undergraduate level.

Description: Two separate building investigations will be discussed. The first involves the LinWood High School, and the accidental discovery of a roof with severe dry rot in the wood framing resulting from poor architectural detailing of the ventilation of the roof system. The roof was located over a main corridor that students and staff used every day. The discovery was made in Oct. 2011, with winter on the doorstep in snow country. In addition to repair design, a key component of decisions revolved around can the school be kept open, maintaining egress in this portion of the school and speed of the repair with winter fast approaching.

The second brief presentation involves an insurance claim on a wood framed barn that nearly collapsed due to improper shoring, as a contractor tried to construct new footings for the barn. The principal question was, is the damage repairable and as an ancillary question, what caused the damage. A third question quickly became very obvious once it was determined that the building was not salvageable, that question being, how do you safely remove the barn without damaging adjacent occupied buildings.



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7:45 pm-8:15 pm

ABC Design and Construction Project Overview and Lessons Learned

By Jim Hall, PE

Mr. **Jim Hall** has 19 years of experience in the rehabilitation and replacement of all types of bridges throughout New England from large interstate bridges to historic trusses and covered bridges. Jim leads the bridge department for Dubois & King from their Bedford, New Hampshire office and is a licensed PE in every New England state except Rhode Island. Jim worked closely with the Department on the Portsmouth Route 1 Bypass bridge replacements project, the Manchester Airport Access Road project, and numerous other bridge projects throughout New Hampshire.

Description: DuBois & King (D&K) provided design, assistance in the public involvement process, and associated environmental and cultural services for replacement of the bridge carrying NH Route 113 over Bearcamp River in the town of Tamworth. The existing bridge was constructed in 1955, was a 3-span bridge with a total length of 123 ft. The center span was steel girders and a concrete deck, while the end spans were concrete slabs.

D&K designed the replacement bridge (substructure and superstructure), which was constructed using Accelerated Bridge Construction (ABC) techniques in a compressed 28-day timeframe in August 2018. The new bridge design consists of butted precast/prestressed concrete on precast concrete abutments with spread footings. The replacement bridge is the longest single span of its type in New Hampshire with a span length of 133'-0" between bearings.

8:15 pm-8:45 pm

The Vila Bridge; Analysis of a Historic Concrete Spandrel Arch Bridge

By Kayla Hampe, PE

Ms. **Kayla Hampe** is a Structural Engineer with Hoyle, Tanner & Associate, Inc. where she is a Project Engineer for the New England Bridge Team. She earned her BS in Civil Engineering from the University of New Hampshire and her MS in Structural Engineering from Lehigh University. Kayla is a licensed Professional Engineer in New Hampshire and has over six years of experience with a diverse background in the design and analysis of bridges, buildings, and other structures for new construction and rehabilitation projects. She has been the Co-Chair of the Professional Development Committee for SENH since 2018.

Description: The Vilas Bridge is a two-span open spandrel deck arch bridge that carries Bridge Street in an east-west direction across the Connecticut River between Walpole, New Hampshire and the village of Bellows Falls, Vermont. The bridge was constructed circa 1930 and has been closed to traffic (vehicles and pedestrians) since 2009. Each span is approximately 108 feet from the abutment to the center pier and the bridge is 32'-6" wide at the deck. The deck includes a 24'-0" roadway with a 4'-9" sidewalk on the south side. Each arch includes two parallel reinforced ribs that support spandrel columns at approximately 12 feet on center. The deck is a reinforced concrete slab that is supported by transverse beams spanning between the spandrel columns or the arch ribs.

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Hoyle, Tanner's New England Bridge Team was tasked with analyzing and load rating the Vilas Bridge in 2018 by the New Hampshire Department of Transportation (NHDOT). The bridge was analyzed using Midas Civil structural engineering software and the results were used to load rate the existing bridge. The load rating results were then presented to NHDOT.

